

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

WALTER M. DICKIE, M.D., Director

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GUY P. JONES
EDITOR

*Swimming Pool Disinfection**

By CHESTER G. GILLESPIE, Chief, Bureau of Sanitary Engineering

IN THIS DAY of elevated hygienic standards for swimming water, disinfection of pool water in some form or other is inescapable.

The important thing is that the disinfectant must impart a certain degree of permanence in the disinfecting power of the water within the pool. In fact the action should last several hours. The addition of disinfectant in a circulating system is primarily to maintain the supply of disinfectant in the pool water. This is best accomplished by adding the disinfectant in the circulating system. Pools not equipped with a circulating system can obtain a fair degree of disinfection by hand application direct to the pool. Such a method is at best unreliable and makeshift; not suited to heavily patronized public pools.

Among the disinfectants used for the purpose the most important is chlorine, as a gas or as a solution. Makers of ozone and ultra violet ray equipment, however, also offer disinfecting apparatus for swimming pool use. Whatever method is used should be guaranteed to yield the all-important power of maintaining adequate disinfecting action in the pool under heavy patronage. Chloride of lime is not to be used unless filtered because particles of undissolved lime may get into the eyes.

To get uniform results, especially when patronage is high, the water, whether filtered or unfiltered, must

be recirculated through the pool, using a circulating pump with a capacity sufficient to handle the swimming pool contents in 8 hours or less, and the disinfectant added before the water is returned to the pool. As between chlorine gas and hypochlorite solution, the former yields the more reliable disinfection and there is a notable difference in strength. Chlorine gas is pure chlorine; commercial sodium hypochlorite is about 18 per cent chlorine, or one gallon holds about 1.6 pounds chlorine. Chlorine gas requires the use of gas metering machines. The solution requires a feeding device as commonly used in water treatment.

The quantity of sodium hypochlorite solution desired for a day's use is diluted in a container, barrel or vat holding from 50 to 200 gallons of diluted solution. The solution is then fed into the circulating line according to the needs of the pool. Most solutions deteriorate rapidly. The stock carboy or bottle should therefore be tightly stoppered and kept in a dark place.

Operators are just beginning to understand that the amount of chlorine to be used varies with patronage, warmth of the water and the strength of the chlorine. Experience seems to show that if the free chlorine in the pool is above .2 parts per million the pool is in a disinfected state, and if there is less than .5 parts per million troublesome excess chlorine will not be present, so the problem of the operator is to so administer the chlorine that he keeps the pool water

*From Special Bulletin No. 38 (Revised July 29, 1929) Swimming Pools, Rules, Legislation and Notes on Construction and Operation.

within the above range. As a rough figure one pound of active chlorine each swimming day is needed for a 100,000-gallon pool not heavily patronized. This amount of chlorine would be supplied by 5 pints of commercial hypochlorite solution or 2.5 gallons of household strength sodium hypochloride, or by about four 12-ounce cans of chloride of lime. The quantity needed would be added during the swimming period, starting an hour or so ahead of patronage. Experience will show how to vary the feed according to patronage. The operator must gauge the amount by his test for free chlorine, checked occasionally by bacteriological tests, because sometimes the free chlorine test is unreliable.

A simple test for free chlorine is by the use of the indicator orthotolidin. Color standards and orthotolidin solution can be cheaply obtained from any reliable chemist or from makers of chlorine solution equipment. When this indicator is added to a sample of the water it gives a yellow color proportionate to the amount of chlorine present. Comparison is made with prepared color standards. It is generally considered that if the chlorine in the pool lies between .2 and .5 parts per million results will be satisfactory from all standpoints. Samples should be taken near the inlet, outlet and in large pools at intermediate points.

Filtration alone as practiced in swimming pools is intended only to make the water clear and clean. Such filters are not able to give high bacterial removals. Dependence must be placed on disinfection for a good bacteriological showing.

Sampling.

Health officers taking samples of the swimming pool should aim to take the samples during or soon after periods of heavy patronage. Samples taken in the morning or when the pool is not in use are of little consequence. Any method of design or operation which does not produce a safe swimming pool water under the stress of heavy patronage is a failure.

DEPARTMENT OF PUBLIC HEALTH

STATE OF CALIFORNIA

RULES GOVERNING SANITATION, SAFETY AND CLEANLINESS OF SWIMMING POOLS

On and after August 1, 1929, the following regulations shall apply to artificial swimming pools and appurtenant dressing room buildings open to the general public:

RULE I

Bacterial Quality of Pool Water.

Samples of the water supply admitted to the swimming pool and of water in any part of the pool, when examined bacteriologically, shall at no time during periods when the pool is open to patronage contain more than 1000 total bacteria per cubic centimeter, when plated on standard Agar medium 24 hours at 37.5° C.; nor shall *B. coli* be present in more than

50 per cent of the one cubic centimeter portions of any sample examined when confirmed on Endo medium. The collection, storing, transporting and testing of samples is to be done in accordance with the latest standard methods of water analysis of the American Public Health Association.

RULE II

Clearness of Pool Water.

All water in the pool shall at times of use be bright and clear so that the bottom of the pool may be plainly visible.

RULE III

Safety of Bathers.

Construction, appliances and operation shall be such as to reduce to a practical minimum danger of drowning and of injury to bathers from falls or collisions.

Explanation: The board considers that swimming pool floors should have a slope of not more than one inch per foot where the depth of water is to be less than 5 feet. Low diving boards should not be placed over water having a depth of less than 7 feet. Diving stands and high dives should not be placed over water having a depth of less than 8 feet 6 inches. Walks surrounding the pool should be not less than 4 feet in width. Every pool at all times of use needs adequate attendants for lifeguard purposes, for proper operation of the various devices, for the supervision of conduct of bathers, and to keep the pool and premises in safe, sanitary and clean condition.

Pools should be equipped with convenient buoys, hooks, ropes, poles and equipment for use in rescuing and reviving drowning persons.

Pools used at night should be provided with a system of artificial lighting such as to illuminate all parts of the pool and water therein.

RULE IV

Toilet Facilities.

Adequate and proper toilet facilities for each sex shall be provided at all pools.

RULE V

Laundering.

Bathing suits and towels shall be clean and free of excessive bacterial contamination. They shall be in a condition equal to that produced by commercial laundries.

RULE VI

Cleanliness of Premises.

Premises shall be kept in clean and sanitary condition, well ventilated and airy and well lighted.

RULE VII

Diseased Persons.

All persons known to be or suspected of being afflicted with infectious diseases shall be excluded from the pool, except on presentation of a health certificate of current date from a physician.

RULE VIII

Report With Application for Permit.

Application for permit in accordance with the Swimming Pool Act shall be accompanied by a statement agreeing to comply with the rules herein and by a detailed report showing in just what manner it is proposed to comply with each of the rules. In the case of new pools, or as required, application for permit shall be accompanied by detailed plans of the swimming pool and appurtenances.

MAKING SEWAGE SERVE AGRICULTURE

Water is a scarce commodity in many western communities and the conservation of public water supplies very often constitutes an acute local problem. Many western cities have been obliged to stop the irrigation of city parks and to turn off displays of water in public fountains during the midsummer

months, when the community was threatened with a shortage of water.

Sanitary engineers have helped to solve this problem by the institution of procedures in the reclamation of water from sewage disposal plants, so that it might be used for agricultural purposes. Considerable progress has been made by the Bureau of Sanitary Engineering of the State Department of Public Health in the development of such reclamation procedures. Two California communities are now making preparations to provide a practical demonstration of the possibility that lies in the irrigation of public parks by water reclaimed from sewage treatment plants.

MANY FOOD INSPECTIONS IN SOUTHERN CALIFORNIA

During the first six months of the present year the Bureau of Food and Drugs of the State Department of Public Health has made inspections of not less than 1842 food producing or food dispensing places in southern California. These included groceries, markets, cafes, soft drink parlors, bakeries, delicatessens, meat markets, creameries, and many other similar places of business. In addition, the inspections covered bottling plants, cold storage plants, noodle and macaroni factories, flour mills and other food factories and food manufacturing plants. In addition to the routine inspections of eggs in groceries and markets, 115 extra egg inspections were made in order to secure the full enforcement of the egg laws. The bureau has been particularly active in enforcing the Egg Law in the territory outside of Los Angeles. A total of 115 drug stores was also inspected during the six-months period.

CHANGES ANNOUNCED AMONG HEALTH OFFICERS

On August 1st, Dr. W. D. Hoffman succeeded Mr. M. E. Reed as City Health Officer of Roseville.

Beginning the first of July, Dr. John T. Harrington took over the duties of the Santa Cruz City Health Department, succeeding Dr. N. R. Sullivan, who has been city health officer for several years.

Dr. W. E. Weddle was appointed City Health Officer of Parlier August 1, 1929, taking the place of Dr. R. H. Carter.

Dr. Louis L. Robinson was appointed health officer of Larkspur, Marin County, August 1, 1929, in place of Dr. Lester Newman.

We are prone to look for causes without the body when they are often within.—*F. M. Pottenger.*

ONE YEAR IN JAIL FOR MEDICINE VENDER

For many years, a man named Peterson, located on South Main street, Los Angeles, has been making extravagant claims for various so-called remedies for many diseases. One of the most extravagant of these claims is that for Peterson's "tuberculosis medicine," concerning which he published the following: "The White Plague is very severe, but is not incurable; it takes time and medicine; in from 3 to 6 months we have cured at least 95 per cent of our tuberculosis cases; some take a little longer than others; it doesn't matter how old is your case, or how old you are—the medicine will do the work all the same—and by using PETERSON'S TUBERCULOSIS MEDICINE you will have 99 chances out of a hundred to recover. Our medicine gives permanent relief for tuberculosis and asthma." Similar extravagant claims were made for various other diseases and disabilities.

This man has for years preyed upon the ignorant, printing his literature in Spanish as well as in English. The Bureau of Foods and Drugs of the State Department of Public Health has had this man cited four times to appear in court, but it is only recently that a conviction was secured. A jury trial was held and the defendant was found guilty. A sentence of one year in the city jail was imposed, together with the filing of a bond of \$3,750. This conviction is far reaching, and is indicative of similar results that may be expected in the prosecution of other venders who are making extravagant claims for their products, and who are imposing upon the credulity of those who, through ignorance, are easily imposed upon.

IMPORTANT MEETING FOR PUBLIC HEALTH NURSES IN INDUSTRY

The National Organization for Public Health Nursing will have an important place in the program of the Annual Safety Congress of the National Safety Council to be held in Chicago, September 30th to October 4th.

The meeting of the Industrial Health section, August 1st, will be of special interest to nurses who are employed in commerce and industry. A luncheon meeting and round-table program is being planned for Wednesday, October 2d, under the auspices of the Industrial Nurses Section, at which time the topic, "Plant Relationship to the Nursing Service" will be discussed by experts in the field of personnel management, industrial relations, safety engineering, industrial medicine and industrial nursing.

MORBIDITY.***Diphtheria.**

38 cases of diphtheria have been reported, as follows: Alameda County 1, Alameda 1, Oakland 1, Lakeport 2, Los Angeles County 2, Glendale 2, Long Beach 1, Los Angeles 5, Vernon 1, West Covina 1, Merced County 1, Monterey County 1, Colton 1, San Diego 1, San Francisco 7, San Mateo County 1, Santa Clara County 1, Gilroy 1, Sonoma County 3, Stanislaus County 2, Ventura County 2.

Scarlet Fever.

57 cases of scarlet fever have been reported, as follows: Alameda County 1, Albany 1, Oakland 3, Fresno 1, Lassen County 1, Los Angeles County 6, Burbank 1, Huntington Park 1, Long Beach 1, Los Angeles 5, Torrance 1, Madera County 1, Merced 1, Monterey County 1, Huntington Beach 1, Sacramento 1, San Diego 1, San Francisco 11, San Mateo County 1, Daly City 1, San Bruno 2, Santa Clara County 2, Gilroy 1, Palo Alto 1, San Jose 5, Healdsburg 1, Santa Rosa 1, Modesto 3.

Measles.

28 cases of measles have been reported, as follows: Oakland 2, Los Angeles County 3, Los Angeles 5, San Diego 2, San Luis Obispo County 1, Paso Robles 2, San Mateo County 1, South San Francisco 1, Santa Clara 11.

Smallpox.

13 cases of smallpox have been reported, as follows: Long Beach 1, Riverside 3, San Francisco 2, San Luis Obispo County 5, San Luis Obispo 2.

Typhoid Fever.

24 cases of typhoid fever have been reported, as follows: Alameda County 1, Livermore 1, Contra Costa County 1,

Calexico 1, Los Angeles County 2, El Monte 1, Glendale 1, Los Angeles 2, South Gate 1, Marin County 1, Merced County 2, Colton 1, San Francisco 2, San Joaquin County 1, Sonoma County 1, Tulare County 1, California 4.**

Whooping Cough.

116 cases of whooping cough have been reported, as follows: Berkeley 14, Oakland 10, Contra Costa 8, Kern County 1, Los Angeles County 11, Inglewood 1, Los Angeles 33, Pasadena 4, Brea 1, Fullerton 2, Riverside 1, Sacramento 6, San Diego 12, San Francisco 3, San Joaquin County 1, Stockton 2, San Luis Obispo County 3, Paso Robles 1, Santa Clara 2.

Meningitis (Epidemic).

9 cases of epidemic meningitis have been reported, as follows: Albany 1, Los Angeles 3, Monterey County 1, Sacramento 1, San Diego 1, San Francisco 1, Tulare County 1.

Poliomyelitis.

7 cases of poliomyelitis have been reported, as follows: Calexico 1, Pomona 1, San Francisco 4, Yuba County 1.

Food Poisoning.

Los Angeles reported 20 cases of food poisoning.

Undulant Fever.

2 cases of undulant fever have been reported, as follows: Hanford 1, Los Angeles 1.

Tularemia.

Plumas County reported one case of tularemia.

*From reports received August 19th and 20th, for week ending August 17th.

**Cases charged to "California" represent patients ill before entering the state or those who contracted their illness traveling about the state throughout the incubation period of the disease. These cases are not chargeable to any one locality.

COMMUNICABLE DISEASE REPORTS

Disease	1929				1928			
	Week ending			Reports for week ending Aug. 17 received by Aug. 20	Week ending			Reports for week ending Aug. 18 received by Aug. 21
	July 27	Aug. 3	Aug. 10		July 28	Aug. 4	Aug. 11	
Actinomycosis.....	0	1	0	0	1	0	0	0
Chickenpox.....	65	55	42	43	62	48	34	40
Coccidioidal Granuloma..	3	0	0	0	1	1	1	0
Dengue.....	0	1	0	0	0	0	0	0
Diphtheria.....	33	49	31	38	51	55	64	60
Dysentery (Amoebic).....	0	3	1	0	0	0	1	2
Dysentery (Bacillary).....	0	7	556	1	0	1	1	2
Encephalitis (Epidemic)...	2	4	1	0	1	0	2	0
Erysipelas.....	12	15	8	7	6	9	25	9
Food Poisoning.....	1	20	0	20	0	2	5	1
German Measles.....	4	5	5	3	23	16	17	13
Gonococcus Infection.....	93	116	93	93	194	93	114	158
Influenza.....	7	14	8	9	12	10	4	15
Jaundice (Epidemic).....	0	1	0	0	0	0	0	0
Leprosy.....	0	1	0	0	0	0	1	2
Malaria.....	3	6	5	1	0	3	1	1
Measles.....	57	35	18	28	21	20	11	4
Meningitis (Epidemic)...	17	9	5	9	6	4	2	4
Mumps.....	109	133	98	110	41	68	61	49
Ophthalmia Neonatorum...	0	0	0	0	0	0	1	0
Paratyphoid Fever.....	0	0	1	60	3	1	1	1
Pellagra.....	0	2	0	2	6	1	1	0
Plague.....	0	0	0	0	0	1	0	0
Pneumonia (Lobar).....	23	71	24	23	66	27	29	22
Poliomyelitis.....	4	1	4	7	7	7	4	5
Rabies (Human).....	0	0	0	1	0	0	0	0
Rabies (Animal).....	7	17	9	7	18	7	19	9
Scarlet Fever.....	108	70	76	57	63	62	40	34
Smallpox.....	28	13	23	13	17	10	13	6
Syphilis.....	139	261	120	89	251	146	185	122
Tetanus.....	3	2	2	2	4	3	3	1
Trachoma.....	1	1	2	0	0	1	1	1
Tularemia.....	2	0	0	1	1	0	0	0
Tuberculosis.....	221	210	188	152	237	209	155	156
Typhoid Fever.....	27	35	18	24	15	18	27	22
Typhus Fever.....	0	1	0	0	0	0	0	0
Undulant Fever.....	3	1	0	2	0	0	0	1
Whooping Cough.....	176	173	154	116	228	175	146	177
Totals.....	1,148	1,333	1,492	918	1,335	998	969	917



Typhoid fever is in its seasonal rise.

1 1 1

Whooping cough is prevalent.

1 1 1

Food poisoning cases are common at this season.

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Undulant fever and tularemia appeared again last week.

